A PRELIMINARY STUDY OF THE MOSS GENUS *ISOPTERYGIUM* IN LATIN AMERICA

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Resumen
Se presenta el estudio taxonómico preliminar del género *Isopterygium* (Hypnaceae), musgo pleurocárpico, en latinoamérica. Se localizaron y examinaron 78 ejemplares tipo de los 92 taxa reconocidos, de acuerdo con el Index Muscorum, para México, Centro y Sur América. El detallado estudio nomenclatural permitió reconocer para la región siete especies: *Isopterygium affusum* Mitt., *I. byssobolax* (C. Müll.) Par., *I. miradoricum* (C. Müll.) Jaeg. & Sauerb., *I. subbrevisetum* (Hampe) Broth., *I. sobglobosum* Herz., *I. tenerifolium* Mitt. e *I. tenerum* (Sw.) Mitt. Se provee una clave para la identificación de las especies, su distribución conocida y la lista de sinónimos para cada una de ellas. Algunos taxa anteriormente ubicados en *Isopterygium* fue necesario transferirlos a otros taxa, lo cual requiere las siguientes combinaciones nuevas: *Wijkia alstonii* (Bartr.) Irel. (*Isopterygium alstonii* Bartr.), *Pseudotaxiphyllum homomallifolium* (Redf.) Irel. *(Isopereygium homomallifolium* Redf.), *Pseudotaxiphyllum machrisianum* (Crum) Irel. *(Taxiphyllum machrisianum* Crum), *Pseudotaxiphyllum richardsii* (Bartr.) Irel. *(Isopterygium richardsii* Bartr.)

Abstract
A preliminary taxonomic study was conducted on the pleurocarpous moss genus *Isopterygium* in Latin America. The types of 78 the 92 taxa recognized for Mexico, Central and South America by Index Muscorum were located and examined. Synonymy was found to be extensive with only seven species presently being recognized for the region, including *Isopterygium affusum* Mitt., *I. byssobolax* (C. Müll.) Par., *I. miradoricum* (C. Müll.) Jaeg. & Sauerb., *I. subbrevisetum* (Hampe) Broth., *I. subglobosum* Herz., *I. tenerifolium* Mitt. and *I. tenerum* (Sw.) Mitt. A key to the identification of the species, their known distribution and a list of synonyms for each species is provided. It was necessary to transfer some of the taxa formerly placed in *Isopterygium* into other genera which required the following new combinations: *Wijkia alstonii* (Bartr.) Irel. *(Isopterygium alstonii* Bartr.), *Pseudotaxiphyllum homomallifolium* (Redf.) Irel. *(Isopterygium homomallifolium* Redf.), *Pseudotaxiphyllum machrisianum* (Crum) Irel. *(Taxiphyllum machrisianum* Crum), *Pseudotaxiphyllum richardsii* (Bartr.) Irel. *(Isopterygium richardsii* Bartr.).

Isopterygium is a taxonomically difficult pleurocarpous moss genus in the family Hypnaceae. It is one of 40 genera presently placed in the family (Vitt, 1984) and one that has been difficult to define since it was described by Mitten (1869).

Mitten (1869) described *Isopterygium* as fol lows: stem procumbent, branches of unequal length, arranged in fascicles. Leaves complanate, distichous, three upper rows (a central and intermediate ones) scarcely evident, three lower rows undifferentiated, very shortly bicostate, cells narrow, smooth. Capsule inclined or horizontal, oblong, cilia united into one. He placed eight species within the new genus; three that he described, *I. affusum* Mitt., *I. planissimum* Mitt., *I. tenerifolium* Mitt. and five that he transferred from *Hypnum, I. brachyneuron* (C. Müll.) Mitt., *I. chrismarii* (C. Müll.) Mitt., *I. curvicolle* (C. Müll.) Mitt., *I. leucophyllum* (Hampe) Mitt., *I. tenerum* (Sw.) Mitt. These species were all from a number of localities in the West Indies, Mexico and South America. They were distinguished from one another on the basis of a few macroscopic leaf characters, generally leaf shape and the form of the apex.

In the years following Mitten's (1869) description, *Isopterygium* unfortunately became a catch–all genus for a number of miscellaneous complanate–foliate and difficult to determine pleurocarpous mosses. Its size swelled enormously during the next century, with many bryologists adding taxa either by describing new species or by transferring them from other genera, especially *Hypnum*. This activity resulted in an unwieldy, vaguely defined genus comprising about 390 taxa as enumerated in Index Muscorum (Wijk *et. al.* 1964, 1969).

During the last 25 years, Zennoske Iwatsuki has done more than any bryologist to clarify the taxonomy of *Isopterygium*. His studies of *Taxiphyllum* (1963), *Herzogiella* (1965, including the segregates *Dolichotheca, Sharpiella), Plagiothecium* (1970), *Isopterygiopsis* (1970) and recently, *Isopterygium* and *Pseudotaxiphyllum* (1987) have helped considerably in the classification of this difficult and disorganized genus. The work by Ireland on the North American (1969) and Mexican (1984) *Isopterygium* species also has helped to a certain extent.

Isopterygium in Latin America has received little taxonomic attention and a revision of the genus for this region is long overdue. Almost 40 years ago Bartram (1949) made a statement in his Mosses of Guatemala (see discussion of *I. miradoricum* (C. Müll.) Jaeg. & Sauerb.) that probably expresses the sentiments of many Latin American bryologists. He stated "So many closely allied species have been described from adjacent regions that it is impossible to apply specific names with any satisfaction. Any practical understanding of the group must await a thorough revisional study". I formed the same opinion when I treated the *Isopterygium* taxa for the projected Manual of Mexican Mosses (Sharp, 1977). It was because of this poor understanding of *Isopterygium* and my previous interest in the genus that I started this revision of the Latin American species in 1987.

There are 92 taxa of *Isopterygium* currently recognized by Index Muscorum (Wijk *et al.* 1964, 1969) and Ireland (1984) for Mexico, Central and South America. Thus far, my study has concentrated on locating the types of these 92 species and varieties (Table 2). All but 14 (mostly described by Carl Müller and destroyed at Berlin) of the 92 types were found and examined.

This type study revealed that seven of the 78 taxa whose types were examined are neither in *Isopterygium* nor in the closely related genera *Isopterygiopsis* or *Pseudotaxiphyllum*. Of these seven taxa, two are more suitably placed in *Plagiothecium*, two in *Mittenothamnium*, and one each in *Lepyrodon*, *Wijkia* and *Platydictya* (see

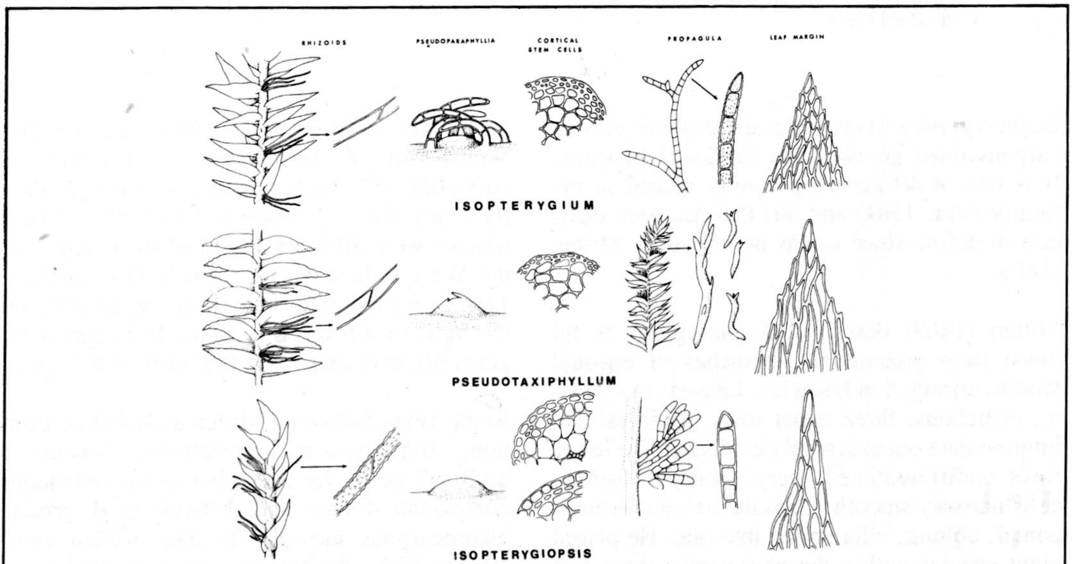

Figure 1. Some diagnostic characters of *Isopterygium*, *Pseudotaxiphyllum* and *Isopterygiopsis* referred to in Table 1.

CHARACTER	ISOPTERYGIUM	PSEUDOTAXIPHYLLUM	ISOPTERYGIOPSIS
Rhizoids	Bellow leaf insertion; smooth	Below leaf insertion; smooth	In leaf axils: papillose
Pseudoparaphyllia	Filamentous	Lacking	Lacking
Cordical stem Cells	Cells small and thick-walled	Cells and thick-walled	Cells large and thin-walled or small and thick-walled
Propagula	Filamentous or lacking	Various types of branchlets	Cylindrical or fusiform
Leaf margins	Usually serrate at apex	Usually serrate at apex	Usually entire at apex
Sexuality	Usually autoicous	Usually dioicous	Autoicous or dioicous
Annulus	Lacking	Differentiated	Differentiated

Table 1. Comparison of important characteristics of *Isopterygium, Pseudotaxiphyllum* and *Isopterygiopsis,* modified from Iwatsuki, 1987 (See Fig. 1).

Table 2). It thus becomes necessary to make the following new combination:

Wijkia alstonii (Bartr.) Irel., comb. nov.
Isopterygium alstonii Bartr., Bryologist 56: 168. 1953. Type: "Venezuela. Federal Dist., Pico de El Avila, alt. 2000 m., Dec. 17, 1938", *Alston* 5574c. (Holotype FH!; Isotypes BM! US!).

The remaining 71 Latin American taxa whose types were studied belong in the genus *Isopterygium* or its close relatives *Isopterygiopsis* Iwats. (Iwatsuki, 1970) and *Pseudotaxiphyllum,* recently described by Iwatsuki (1987). A summary of the main characters used to differentiate the three genera is presented in Table 1 and illustrated in Figure 1.

Synonymy of the 71 taxa was extensive, as there are only two legitimate taxa recognized in *Isopterygiopsis,* four in *Pseudotaxiphyllum* and seven in *Isopterygium* (Table 2).

The genus *Isopterygiopsis* is represented in Latin America by the only two know species, *I. muelleriana* (Schimp.) Iwats. and *I. pulchella* (Hedw.) Iwats. The latter had not been previously reported from Latin America but both *I. fuegianum* Besch. and *I. leptoplumosum* (Dus.) Card. from Chile appear to be similar in every important character and are considered here to be new synonyms.

Seven species know from Japan were placed in the genus *Pseudotaxiphyllum* when Iwatsuki (1987) described it. In Latin America the genus is represented by *P. distichaceum* (Mitt.) Iwats. and three other species that require new combinations:

Pseudotaxiphyllum homomallifolium (Redf.) Irel., comb. nov.
Isopterygium homomallifolium Redf., Bryologist 76: 440. 1973. Type: Texas, Kimble Co., along North Llano River ca. 1/2 mile south of Roosevelt, *Redfearn 27190.* (Holotype NY!).

Pseudotaxiphyllum machrisianum (Crum) Irel., comb. nov.
Taxiphyllum machrisianum Crum, Contr. Sci. Los Angeles Mus. 18: 5. 1957. Type: Brazil, 4 km N of Veadeiros, Chapada dos Veadeiros, Goiás, *Dawson 14743a.* (Isotype CANM!)

Isopterygium machrisianum (Crum) Irel., Bryologist 87: 356. 1985.

Pseudotaxiphyllum richardsii (Bartr.) Irel., comb. nov.
Isopterygium richardsii Bartr., Bryologist 44: 64. 1941. Type: Mexico, Sonora, Imuris, along Rio de los Alisos, *Richards & Drouet 757* (Holotype F!; Isotype F!, DUKE!). 11 mi. NE of Baviácora, *Richards, Drouet & Lockhart 676.* (Paratype F!, TENN!)

One other taxon, *Isopterygium elegans* var. *nanum* (Jur.) Jaeg. & Sauerb. (= *Pseudotaxiphyllum elegans* (Brid.) Iwats.?), may also be present in Argentina (Matteri, 1986) but the specimen has not yet been seen to confirm the report.

Removal of the segregate genera *Isopterygiopsis* and *Pseudotaxiphyllum* from *Isopterygium* makes it more homogenous and easier to define. The seven accepted Latin American species remaining in *Isopterygium* as a result of this type study are *I. affusum* Mitt., *I. byssobolax* (C. Müll.) Par., *I. miradoricum* (C. Müll.) Jaeg. & Sauerb., *I. subglobosum* Herz., *I. subbrevisetum* (Hampe) Broth., *I. tenerifolium* Mitt. and *I. tenerum* (Sw.) Mitt. A total of 40 taxa described from Latin America were found to be synonymous with the widespread and extremely variable *I. tenerum*. The large number of synonyms for this species, which is also the type of the genus (Iwatsuki & Crosby, 1979), was more or less predicted after a North American study of *Isopterygium* (Ireland, 1969). It is interesting that three (*I. affusum, I. tenerifolium. I. tenerum*) of the eight species recognized in *Isopterygium* when Mitten (1869) first described it are among those presently accepted in the genus. Three others are considered synonyms of *I. tenerum (I. brachyneuron, I.·curvicolle, I. leucophyllum)*. The type of one, *I. chrismarii*, has not been located and the remaining one, *I. planissimum*, which is placed in *Plagiothecium* by Index Muscorum (Wijk *et. al.*, 1964), is now considered a synonym of *Taxiphyllum taxirameum* (Mitt.) Fleisch. (Ireland, 1969).

Because of recent taxonomic studies, it is now possible to clearly delimit the genus *Isopterygium* so it can be readily recognized in Latin America and elsewhere.

Isopterygium Mitt., J. Linn. Soc. bot. 12: 21. 1869. Type: *I. tenerum* (Sw.) Mitt., J. Linn. Soc. Bot. 12: 499. 1869. (Lectotype selected by Iwatsuki & Crosby, 1979).
Basionym: *Hypnum tenerum* Sw., Fl. Ind. Occ. 3: 1817, 1806. Type: Habitat in truncis arborum Jamaicae montosae. (Holotype? S!; Isotype? BM!, C!)

Plants often complanate, small to medium sized, in thin to dense, light–to yellow–green glossy mats. Stems creeping, simple or sparingly and irregularly branched, cortical cells small and thick-walled in cross-section, surrounding larger, thinner walled cells, central strand usually absent; rhizoids smooth, on ventral surface of stems and branches just below juncture of leaves; pseudoparaphyllia filamentous. Asexual reproductive bodies sometimes present on stems and branches, uniseriate, filamentous, multicellular bodies with papillose cells. Stem and branch leaves similar, rigid or flaccid, crowded and imbricate to remote, erect-spreading or squarrose, commonly complanate-foliate, sometimes contorted when dry, smooth, flat or somewhat concave, symmetric or asymmetric, non-decurrent or rarely with 1-2 cells decurrent, ovate or lanceolate, sometimes oblong, acute to acuminate; margins plane to erect, sometimes recurved at base, serrulate above the middle, mostly entire below, sometimes entire throughout; costa short and double, sometimes lacking; cells often flexuose, thin to firm-walled, linear-fusiform, smooth, with walls not pitted or occasionally those of basal cells pitted; alar cells usually clearly differentiated, quadrate to rectangular, rarely transversely elongate. Autoicous or rarely dioicous; perigonia scattered along the stems; perichaetia at base of stems, leaves oblong-lanceolate, gradually acuminate, margins plane. Setae smooth, elongate, straight to curved, usually twisted, yellow, brown or reddish brown; capsules inclined to cernuous, or sometimes erect, straight or curved when mature, brown to red-brown, cylindric, ellipsoid or ovoid, smooth or sometimes wrinkled at neck when dry, usually contracted below the mouth when dry; operculum conic to short–rostrate, shorter than the urn; annulus none; peristome double, exostome teeth cross–striolate below, papillose above, bordered, trabeculate at back; endostome with a high to low basal membrane, keeled segments, and cilia shorter than the segments and in groups of 1-3, sometimes absent. Spores spherical to ovoid, smooth or minutely papillose. Calyptra cucullate, smooth, naked.

Key to *Isopterygium* of Mexico, Central and South America

1a. Leaves narrowly lanceolate, mostly more than 3 times as long as broad, distant, wide–spreading to squarrose, straight and symmetric (Costa Rica, Brazil) .... **7 I. subbrevisetum**

1b. Leaves ovate to ovate–lanceolate, mostly less than 3 times as long as broad, close, erect to squarrose, often curved and asymmetric **2**

2a. Leaves erect, usually less than 1 mm long; alar cells strongly differentiated, 4-10 quadrate to short–rectangular cells on margins (Argentina, Brazil) .... **4. I. byssobolax**

2b. Leaves spreading to squarrose, often more than 1 mm long; alar cells weakly differentiated,

sometimes 1-2 quadrate to short–rectangular cells on margins **3**
3a. Plants aquatic; leaves 1-3 mm long (Honduras, Brazil) .... **3. I. affusum**
3b. Plants terrestrial; leaves 0.7-1.5 mm long **4**
4a. Capsules erect or rarely inclined, not or scarcely contracted below mouth when dry (Guatemala, Mexico) .... **5. I. miradoricum**
4b. Capsules inclined to horizontal, rarely erect, usually strongly contracted below mouth when dry **5**
5a. Capsules subglobose, about as broad as long, not contracted below mouth when dry (Bolivia)............ .... **6. I. subglobosum**
5b. Capsules ovoid to ellipsoid, longer than broad, strongly contracted below mouth when dry **6**
6a. Plants large, stems often 2-4 cm long; leaves 1-1.5 mm long; setae usually 2-3 cm long; asexual reproductive bodies lacking (Costa Rica, Bolivia, Brazil, Ecuador, Guyana) .... **2. I. tenerifolium**
6b. Plants small, stems seldom over 2 cm long; leaves 0.7-1.2 cm long; setae usually 0.5-1.2 cm long; asexual reproductive bodies sometimes present on stems, filamentous, multicelular, with papillose cells (Guatemala, Honduras, Mexico, Panama, Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Surinam, Venezuela)...... .... **1. I. tenerum**

1. **Isopterygium tenerum** (Sw.) Mitt., J. Linn Soc. London, Bot. 12: 499. 1869.

Hypnum tenerum Sw., Fl. Ind. Occ. 3: 1817. 1806. Type: Habitat in truncis arborum Jamaicae montosae (Holotype? S! Isotypes? BM!, C!)

Isothecium tenerum (Sw.) Brid., Bryol. Univ. 2: 385. 1827.

Hypnum micans Sw., Adnot. Bot. 175. 1829. Type: In America septentrionali: *Mühlenberg.*

Hypnum splendidulum Hornsch., F. Bras. 1(2): 77. 1840. Type: In Serra dos Orgaós, Feb., *Beyrich;* prope Tijuca in vicinia Rio de Janeiro, *Olfera, Sellow, Merkel;* in serra d'Estrella et prope urbem S. Pauli. (Lectotype–Beyrich specimen BM!)

Hypnum fulvum Hook. & Wils. in Drumm., Musci Amer. (Southern States) 110. 1841. (illeg. hom.) (non Brid. 1801, nec (Harv.) C. Müll, 1851) type: Louisiana. (Isotypes NY!, WTU!)

Hypnum brachyneuron C. Müll., Bot. Zeit. 3: 109. 1845. Type: Brazil. (Isotypes? H!, NY!)

Hypnum curvicolle C. Müll., Syn. 2: 684. 1851. ("um") Type: Brasilia, insula S. Catharinae, Pabst, April and May 1847. (Isotypes H!, JE!)

Hypnum leucophyllum Hampe in C. Müll., Syn. 2: 280. 1851. Type: Chile ad arbores. (Holotype BM!)

Hypnum hospitans Hampe, Ann. Sci. Nat. Bot. ser 5,5: 313. 1866. Type: Bogota, Tequendama, 2500 m, Aug. 1863, A. Lindig. (Holotype BM!; Isotype M!)

Isopterygium curvicolle (C. Müll.) Mitt., J. Linn. Soc. Bot. 12: 498. 1869.

Isopterygium leucophyllum (Hampe) Mitt., J. Linn. Soc. Bot. 12: 499. 1869.

Hypnum cordovense C. Müll., Linnaea 38: 651. 1874. Type: Mexico, Cordova, *C. Mohr,* Sept. 1857. (Holotype? US!; Isotype? NY!)

Hypnum leptomiton C. Müll., Linnaea 38: 652. 1874. Type: Guatemala. G. Bernoulli. (Holotype BM!; Isotype H!)

Rhynchostegium micans (Sw.) Aust., Bot. Gaz. 1: 30. 1875

Hypnum laxum Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser. 3,6: 166. 1875. (illeg. hom.) Type: Brazil, vicinity of Rio de Janeiro, *A. Glaziou 7197.* (Holotype BM!; Isotypes H!, JE!)

Hypnum divaricatulum C. Müll. *ex* Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser 3,6: 167. 1875. Type: Brazil, vicinia urbis Rio de Janeiro, *A. Glaziou 5611.* (Holotype BM!; Isotypes H!, JE!)

Hypnum lamprophyllum Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser. 3,6: 167. 1875. (illeg. hom.) Type: Brazil, vicinity of Rio de Janeiro, *A. Glaziou 6357.* (Holotype BM!; Isotype H!)

Ectropothecium clandestinum Aongstr., Oefv. K. Vet. Ak. Forh. 33(4): 43. 1876. Type: Brazil, Caldas. *G.A. Lindberg,* June 1854. (Isotypes BM!, H!)

Isopterygium streptopodium Besch., Ann. Sci. Nat. Bot. ser. 6,3: 257. 1876. Type: Guadeloupe, chemin de la Soufrière (*Husnot,* exsicc., no. 184). (Hopotype BM!)

Isopterygium hospitans (Hampe) Jaeg. & Sauerb., Ber. St. Gall. Naturw. Ges. 1876-77: 434. 1878.

Isopterygium cordovense (C. Müll.) Jaeg. & Sauerb., Ber. St. Gall. Naturw. Ges. 1876-77: 436. 1878.

Isopterygium leptomiton (C. Müll.) Jaeg. & Sauerb., Ber. St. Gall. Naturw. Ges. 1876-77: 436. 1878.

Plagiothecium fulvum (Hook. & Wils.) Jaeg. & Sauerb., Ber. St. Gall. Naturw. Ges. 1876-77: 450. 1878.

Hypnum brachystelium Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser. 4,1: 139. 1879. Type: Prope

Novo Friburgo in ramis leg. *Beyrich*. (Holotype BM!)

Hypnum citrinum Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser. 4,1: 142. 1879. Type: Brazil, Serra dos Orgãos. (Holotype BM!)

Hypnum cacti C. Müll., Linnaea 42: 437. 1879. Type: Argentina Uruguensis, Concepcion del Uruguar, sub Cacteis in Quinta del Colegio, fine April, 1876, *P.G. Lorentz*. (Isotypes JE!, H!)

Hypnum eutrypherum C. Müll., Linnaea 42: 497. 1879. Type: Venezuela, prope Colonian Tovar, 1855, *A. Fendler 153*. (Isotypes BM!, H!)

Hypnum restitutum Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser. 4,1: 141. 1879. Type: In vicinia Rio de Janeiro sub Nr. 7163 et 7455 intermixtum parce legit *Glaziou*. (Lectotype –7163 BM!, Syntype 7455 H!)

Ectropothecium laxum Jaeg. & Sauerb., Ber. St. Gall. Naturw. Ges. 1877-78: 266. 1880. (Based on same type as *Hypnum laxum* Hampe)

Ectropothecium lamprophyllum Jaeg & Sauerb., Ber. St. Gall. Naturw. Ges. 1877-78: 266. 1880. (Based on same type as *Hypnum lamprophyllum* Hampe)

Hypnum chlorosum Hampe, Flora 64: 414. 1881. Type: Prope Rio de Janeiro: *Gaziou 11733*. (Holotype BM!, Isotype H!)

Isopterygium cacti (C. Müll.) Kindb., Enum. Bryin Exot. 20. 1888.

Isopterygium micans (Sw.) Kindb., Enum. Bryin Exot. 21. 1888.

Isopterygium subtenerum Besch., J. de Bot. 5: 348. 1891. Type: Paraguay, Cordillère de Péribébui, juillet 1879. *Balansa, 3690*. (Holotype BM!)

Isopterygium guarapense Besch., J. de Bot. 5: 349. 1891. Type: Paraguay, Guarapi, sur les écorces d'arbres, 1878. *Balansa, 3619*. (Holotype? BM!, Isotype H!)

Isopterygium brachystelium (Hampe) Kindb., Enum. Bryin. Exot. 100. 1891.

Isopterygium citrinum (Hampe) Kindb., Enum. Bryin. Exot. 100. 1891.

Rhaphidostegium micans (Sw.) Ren. & Card., Rev. Bryol. 20: 21. 1893.

Isopterygium fulvum (Hook. & Wils.) Kindb., Can. Rec. Sci. 6(2): 72. 1894.

Isopterygium laxum (Jaeg. & Sauerb.) Broth., Bih. K. Svensk. Vet. Ak. Handl. 21 Afd. 3(3): 56. 1895. (Based on same type as *Hypnum laxum* Hampe).

Plagiothecium radicisetum C. Müll., Malpighia 10: 515. 1896. Type: Guyana, prope Georgetown ad cataractas "Marshall falls" fluvii Mazaruni a Cl. *J. Quelch* collecti. (Isotype BM!)

Plagiothecium micans (Sw.) Par., Index Bryol. (Ed. 1) 963. 1896.

Plagiothecium micans var. *fulvum* (Hook. & Wils.) Par., Index Bryol. (Ed. 1) 963. 1896.

Taxicaulis adflatus C. Müll., Hedwigia 36: 115. 1897. Type: Argentinia subtropica Tucumanensis prope Tucunán; P.G. *Lorentz Martio* 1872. (Isotype H!)

Taxicaulis cylindraceus C. Müll., Nuov. Giorn. Bot. Ital. n. ser. 4: 151. 1897. Type: Bolivia, Prope Choquecamata provinciae Cochabamba, june 1889. *Germain*, (Isotype H!)

Taxicaulis trichopelma C. Müll., Bull. Herb. Boiss. 5: 210. 1897. Type: Guatemala, Alta Vera Paz, Pansanala, 3800 ped. alt. in truncis (filicinis?) Dec. 1887 cum fructibus valde maturis, *Türckheim*. (Holotype BM!)

Isopterygium chlorosum (Hampe) Par., Ind, Bryol. 706. 1897.

Isopterygium eutrypherum (C. Müll.) Par., Ind. Bryol. 707. 1897.

Taxicaulis weigeltii C. Müll., Hedwigia 37: 252. 1898. ("i") Type: Surinam: Weigelt. (Isotype? H!)

Taxicaulis rufisetulus C. Müll., Hedwigia 37: 253. 1898. Type: Cuba, sine loco natale: Charles Wright, III. 96 (Isotype? H!)

Taxicaulis araneosetus C. Müll., Hedwigia 37: 255. 1898. Type Insula Trinidad Antillarum, prope Maroval, Julio 1847. *Crüger* (Isotype? H!)

Isopterygium callochlorum Broth., Bih. K. Svensk. Vet. Ak. Handl. 26 Afd. 3(7): 48. 1900. Type: Paraguay: Santo Antonio, colonia 'Elisa', *C.A.M. Lindman 231b*. (Holotype H!)

Microthamnium angustirete Broth., Bih. K. Svensk. Vet. Ak. Handl. 26 Afd. 3(7): 48. 1900. Type: Rio Grande do Sul.: S. Leopoldo, Hamburger Berg, *C.A.M. Lindman 115*. (Holotype H!)

Isopterygium adflatum (C. Müll.) Par., Ind. Bryol. Suppl. 217. 1900.

Isopterygium araneosetum (C. Müll.) Par., Ind. Bryol. Suppl. 218. 1900. ("araucosetum")

Isopterygium cylindraceum (C. Müll.) Par., Ind. Bryol. Suppl. 218. 1900.

Isopterygium rufisetulum (C. Müll.) Par., Ind. Bryol. Suppl. 220. 1900.

Plagiothecium bromeliophilum C. Müll., Hedwigia 40: 59. 1901. Type: Brasilia, Sa. Catharina, Tubarão, prope Conconhaz, Oct. 1889, *E. Ule 769.* (Isotype H!)

Plagiothecium aurantiacum C. Müll., Hedwigia 40: 60. 1901. Type: Brasilia, Rio de Janeiro, Restinga de Maua, Aug. 1896,*E. Ule 2145.* (Isotype H!)

Plagiothecium flaviusculum C. Müll., Hedwigia 40: 59. 1901. Type: Brazil, Rio de Janeiro, Restinga de Maua, Aug. 1897. *E. Ule 1941.* (Isotypes! BM!, JE!)

Taxicaulis bahiense C. Müll., Hedwigia 40: 65. 1901. Type: Brasilia, Bahia: *Salzmann* (Isotype? H!)

Taxicaulis afflictus C. Müll., Hedwigia 40: 68. 1901. Type: Brasilia, Goyaz, prope Mossamedes, Jan. 1893, *E. Ule 1616* (Isotype US!)

Taxicaulis ammophilus C. Müll., Hedwigia 40: 66. 1901. Type: Brasilia, Sa. Catharina, Campo de Jaguarone, Laguna, in solo arenoso, Aug. 1889: *E. Ule 780. (Isotypes H!, M!)*

Taxicaulis fabroniiformis C. Müll., Hedwigia 40: 69. 1901. Type: Brazil, Goyaz, prope Mossamedes, Jan. 1893, *E. Ule 1617.* (Isotypes NY!, US!)

Plagiothecium pseudotenerum Broth. & Kindb., *ex* Kindb., Rev. Bryol. 28: 54. 1901. Type: Colombia, near Bonda, in the vicinity of Santa Marta, Dec. 1898. *C.F. Baker,* (Holotype S!)

Isopterygium curvicolle var. *majus* Broth, *in* Bauer, Verh. Zool. Bot. Ges. Wien 55: 576, 578, 1905; Rev. Bryol. 32: 11. 1905. (*nom. nud.*)

Isopterygium ammophilum (C. Müll.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium bahiense (C. Müll.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium clandestinum (Aongstr.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium divaricatulum (Hampe) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium lamprophyllum (Jaeg. & Sauerb.) Broth., Nat. Pfl. 1(3): 1081. 1908. (Based on same type as *Hypnum lamprophyllum* Hampe)

Isopterygium splendidulum (Hornsch.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium weigeltii (C. Müll.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium angustirete (Broth.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium aurantiacum (C. Müll.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium bromeliophilum (C. Müll.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium flaviusculum (C. Müll.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium pseudotenerum (Broth. & Kindb.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium radicisetum (C. Müll.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium afflictum (C. Müll.) Broth., Nat. Pfl. 1(3): 1083. 1908.

Isopterygium fabroniiforme (C. Müll.) Broth., Nat. Pfl. 1(3): 1083. 1908. "fabroniaeforme"

Isopterygium peruvianum Broth., Bot. Jahrb. 56 (Beibl. 123): 21. 1920. Type: Peru, Prov. Sandia: Churchusmayo; Wald, auf faulendem Holz; 900 m 7 July 1902, 1253, *A. Weberbauer 1253.* (Holotype H!)

Isopterygium fernandezianum Broth. in Skottsb., Nat. Hist. Juan Fernández 2(12): 440. 1924. Type Masatierra: In jugo Centinela, *C. & I. Skottsberg 479.* (Holotype H!)

Isopterygium fernandezianum var. *longisetum* Broth. in Skottsb., Nat. Hist. Juan Fernandez 2(12): 440. 1924. Type: Masatierra: Cordón Centinela; 530 m.s.m. (485). Valle Anson prope Plazoleta; 260 m.s.m. (491). Cumberland Bay, Pico Central; 390 m.s.m. (492). Valle Colonial, Quebrada seca; 435 m.s.m. (481, 484, 487). Cerro Pirámide; c. 600 m.s.m. (488). Cordón Salsipuedes; in Dicksonieto; 660 m.s.m. (480, 483). El Yunque; 4-500 m.s.m. (482). Villagra, Quebrada de la Choza; c. 250 m.s.m. (486). (Lectotype – 487 H! Syntypes – 480, 491 H!)

Isopterygium brachyneuroides Broth., Denkschr. Ak Wiss. Wien Math. Nat. Kl. 83: 327. 1926. Type: Brazil, São Paulo. In insula 'Ilha Comprida' prope urbem Iguape, *V. Schiffner 362.* (Holotype H!, Isotype BM!)

Isopterygium diminutivum Bartr., J. Washington Acad. Sci. 18: 581. 1928. "dimunitivum" Type: Túxpan, State of Jalisco, Mexico, November 3, 1926, *Mrs. Ynes Mexía, 1028 a.* (Holotype US!)

2. Isopterygium tenerifolium Mitt., J. Linn. Soc. Bot. 12: 499. 1869. Type: Fl. Amazon, in ripis praeruptis secus Obidos, *Spruce, 1060.* (Holotype NY!; Isotype BM!)

Ectropothecium longisetum Schimp. *ex* Besch., Ann. Sci. Nat. Bot. ser. 6,3: 258. 1876. Type: Guadeloupe, sur la terra, au bord du chemin de la Soufrière *Husnot 169.* (Holotype BM!; Isotypes M!, NY!)

Plagiothecium villae–ricae Besch., Mem. Soc. Sci. Nat. Cherbourg 21: 271. 1877. Type: Paraguay Guaira, Villa rica, *Balansa 1210.* (Isotype NY!)

Isopterygium longisetum Broth., Bih. K. Svensk. Vet. Ak. Handl. 21 Afd. 3(3): 55. 1895. Type: Prov. Minas Geräes, Caldas, ad ligna putrida stagni (Mosén n. 471) et prope Capivary, ad terram humidam silvulae (n. 439), Serra de Caldas, ad ligna putrida in stagno silvae primaevae (n. 469). Prov. S. Paulo, inter Campinas et Serra de Caracol, ad terram humidam, *Mosén 470.* (Lectotype – 471 H! Syntypes – 439, 469, 470 H!)

Taxicaulis stigmocarpus C. Müll., Nuov. Giorn. Bot. Ital. n. ser. 4: 150. 1897. Types: prope Choquecamata provinciae Cochabamba Bolivianae, *Germain 1173b.* (Lectotype M!; Isolectotype H!)

Taxicaulis excelsipes C. Müll., Hedwigia 37: 253. 1898. Type: Jamaica, near Kingston, 1897, *O. Hansen.* (Isotype H!)

Plagiothecium meteoriaceum C. Müll., Bull. Herb. Boiss. 6: 120. 1898. Type: Brasilia, Serra Itatiaia, 2000 m. altum, in terra, Martio 1894, *E. Ule 1884.* (Isotype H!)

Plagiothecium proximum C. Müll., Hedwigia 38 (Beibl.): 59. 1899. *nom nud.*

Isopterygium meteroriaceum (C. Müll.) Par., Ind. Bryol. Suppl. 220. 1900.

Isopterygium excelsipes (C. Müll.) Par., Ind. Bryol. Suppl. 219. 1900.

Isopterygium stigmocarpum (C. Müll.) Par., Ind. Bryol. Suppl. 220. 1900.

Plagiothecium paludigenum C. Müll., Hedwigia 40: 58. 1901. Type: Brasilia, Sa. Catharina, Tubarào, in solo palustri, Octobri 1890: *E. Ule 912.* (Lectotype H!)

Plagiothecium lonchopelmatum C. Müll., Hedwigia 40: 59. 1901. Type: Brasilia, insula sào Francisco prov. Sa. Catharina, in arboribus putridis sylvestribus, Aug., Sept. et Octobri 1883: *E. Ule 509, 511, 512, 513* et 499. Sa. Catharina, Joinville, in trunco arboris vetustoo, Junio 1883: *Ule 508.* (Lectotype - 511 H!; Isosyntypes - 509, 513 H!)

Plagiothecium restingae C. Müll. Hedwigia 40: 60. 1901. Type: Brasilia, Rio de Janeiro, Restinga de Mauá, in sylva palustri ad truncos arborum putridos, Julio 1896: *E. Ule 2144.* (Lectotype H!; Isolectotype M!)

Plagiothecium restingae var. *tenue* C. Müll., Hedwigia 40: 60. 1901. Type: Brazil, Nova Friburgo, in Capoeira, 1000 m alt., April 1895 *E. Ule.* (Isotype BM!)

Plagiothecium jamaicense C. Müll., Hedwigia 40: 61. 1901. Type: Jamaica borealis, in montibus humidis: *O. Hansen 1897.* (Isotype NY!)

Isopterygium fecundum Ren. & Card., Bull. Soc. R. Bot. Belg. 41(1): 140. 1905. Type: Costa Rica, Potrero del Alto (2460 m.), massif du volcan de Poas, *H. Pittier 5735.* (Isotype US!)

Isopterygium manaosense Broth., Hedwigia 45: 286. 1906. Type: Estado de Amazonas: Manáos, auf Sumpfboden, 2331, 1978, Bryoth. brasil. n. 280). (Lectotype - 280 H!; Syntypes - 2331 H!, BM!)

Isopterygium longisetum (Besch.) Broth., Nat. Pfl. 1(3): 1082. 1908. (illeg. hom.)

Isopterygium restingae (C. Müll.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium paludigenum (C. Müll.) Broth., Nat. Pfl. 1(3): 1082. 1908.

Isopterygium vagans Herz., Biblioth. Bot. 87: 152. 1916. Type: Bolivia, An Wegrändern bei San Miguelito, ca. 1600 m, No. 2765. (Holotype JE!)

Isopterygium altisetum Crum & Steere, Bryologist 59: 254. 1956. (Based on same type as *Ectropothecium longisetum* Schimp. *ex* Besch.)

3. Isopterygium affusum Mitt., J. Linn. Soc. Bot. 12: 499. 1869. Type: Fl. Negro, ad rupes cataractae riv. Tarumá irroratas, inter, *Spruce, 1059;* Brasilia, Sierra de Araripe, prov. Ceara, *Gardner 106c.* (Spruce specimen selected as lectotype by Z. Iwatsuki in 1966. NY!; Isolectotype BM! *Gardner 106c* Isosyntype BM!)

Isopterygium herminieri Schimp. *ex* Besch., Ann. Sci. Nat. Bot. ser. 6,3: 256. 1876. Type: Guadeloupe, dans les rivières ou ruisseaux (L'Herminier, in herb. Schimp.). (Holotype BM! Isotype NY!)

Ectropothecium submersum Broth., Bih. K. Svensk. Vet. Ak. Handl. 26 Afd. 3(7): 48. 1900. Type: Matto Grosso: in silva primaeva 'Poaia' dicta, aquae clarae rivuli Macoco silvatici submersum (n. 502). (Holotype H!; Isotype BM!)

Isopterygium submersum (Broth.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Isopterygium aquaticum Robins., Bryologist 67: 453. 1964. (illeg. hom.) Type: Honduras, Dept. Francisco Morazán, along Rio Agua Amarilla, northeastern slopes of Cerro de Uyuca, *Morton 7566.* (Holotype US!)

Isopterygium irelandii Robins., Bryologist 70: 43. 1967. (Based on same type as *I. aquaticum* Robins.)

4. **Isopterygium byssobolax** (C. Müll.) Par., Ind. Bryol. Suppl. 218. 1900.

Taxicaulis byssobolax C. Müll., Hedwigia 36: 114. 1897.
Type: Argentinia subtropica Tucumanensis, Siambón prope Tucumán Sierrae de Tucumán; Cuesto de Siambón in Aliso-(Alni) regione, 1873: *P.G. Lorentz.* (Lectotype - "Siambón prope Tucumán", JE!; Isosyntype; - "Cuesto de Siambón", JE!)

Taxicaulis pyrrhopus C. Müll., Hedwigia 36: 116. 1897. Type: Argentinia subtropica. Chaco, inter Sn. Andrés et Orán in arboribus sylvestribus, 17 Sept. 1873. *P.G. Lorentz.* (Lectotype M!; Isolectotypes H!, JE!)

Taxicaulis saprophilus C. Müll., Hedwigia 36: 115. 1897. Type: Argentina, Campochico, Aug. 1873, *P.G. Lorentz.* (Lectotype H!)

Isopterygium pyrrhopus (C. Müll.) Par., Ind. Bryol. Suppl. 220. 1900.

Isopterygium saprophilum (C. Müll.) Par., Ind. Bryol. Suppl. 220. 1900.

5. **Isopterygium miradoricum** (C. Müll.) Jaeg. & Sauerb., Ber. St. Gall. Naturw. Ges. 1876-77: 436. 1878.

Hypnum miradoricum C. Müll., Linnaea 38: 650. 1874. Type: "Mexico, Mirador, ad trucos vetustos sylvestres: Florentin Sartorius Aprili 1873.

6. **Isopterygium subglobosum** Herz., Bliblioth. Bot. 87: 151. 1916. Type: Bolivia, Auf faulem Laub an Bachrandern beim Sillar (am Weg nach Santa Rosa del Chapare), ca. 1600 m, No. 2738. (Holotype JE!; Isotype M!)

7. **Isopterygium subbrevisetum** (Hampe) Broth., Nat. Pfl. 1(3): 1081. 1908.

Hypnum subbrevisetum Hampe, Vid. Medd. Naturh. For. Kjoebenh. ser. 3,6: 165. 1875. Type: Brazil, vicinity of Rio de Janeiro, *A. Glaziou 6356.* (Holotype BM!; Isotype H!)

Taxicaulis subtenerrimus C. Müll., Hedwigia 37: 253. 1895. Type: Jamaica, Bethabara: Rever. Wullschlägel. (Isotype NY!)

Isopterygium subtenerrimun (C. Müll.) Par., Ind. Bryol. Suppl. 221. 1900.

Isopterygium pusillum Ren. & Card., Bull. Soc. R. Bot. Belg. 41(1): 107. 1905. Type: Antilles: Protorico, 1900, *A Heller 4495.* (Holotype PC!; Isotype NY!)

Isopterygium tenerrimun Ren. & Card., Bull. Soc. R. Bot. Belg. 41(1): 107. 1905. *nom. nud.*

Nomina Dubia

The status of the following Latin American taxa must remain unknown until their types can be examined.

Isopterygium brevisetum (Hornsch.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Hypnum brevisetum Hornsch., Fl. Bras. 1(2): 78. 1840. Type: Brazil prope Rio de Janeiro, Julio et Augusto *Merkel.* Type apparently not in BM.

Isopterygium chrismarii (C. Müll.) Mitt., J. Linn. Soc. Bot. 12: 500. 1869.

Hypnum chrismarii C. Müll. Syn. 2: 682. 1851. Type: Mexico, prov. Mechoacan, Centro San Andres, Mart. 1849: *V. Chrismar.* Type not located.

Isopterygium exiguum Kindb., Enum. Bryin Exot. 100. 1891.

Hypnum exiguum Geh. & Hampe *in* Hampe, Vid. Medd. Naturh. For Kjoebenh. ser 4,1: 140. 1879. (illeg. hom.) Type: Brazil. Prope Apiahy Junio 1877, *Puiggari,* Type apparently not in BM.

Isopterygium exile(C. Müll.) Par., Ind. Bryol. Suppl. 219. 1900.

Taxicaulis exilis C. Müll., Hedwigia 36: 116. 1897. Type: Paraguay: *Balansa 3619.* Type not located.

Isopterygium fruticola (C. Müll) Par., Ind. Bryol. Suppl. 219. 1900.

Taxicaulis fruticola C. Müll., Hedwigia 37: 252. 1898. "fruticolus" Type: Surinam, ad frutices prope Paramaribo, Aug. 1844; *Hermann Kegel.*

Isopterygium gracillimum (Hornsch.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Hypnum gracillimum Hornsch., Fl. Bras. 1(2): 78. 1840. Type: Brazil In prov. Minarum. Type apparently not in BM.

Isopterygium hookeriophilum (C. Müll.) Broth., Nat. Pfl. 1(3): 1083. 1908.

Taxicaulis hookeriophilus C. Müll., Hedwigia 40: 67. 1901. Type: Brasilia, São Paulo, inter Chaetophoram incurvam Hsch. vigens: *Wohltmann 1891*. Type not located.

Isopterygium microplumosum (C. Müll.) Broth., Nat. Pfl. 1(3): 1083. 1908.

Taxicaulis microplumosus C. Müll., Hedwigia 40: 68. 1901. Type: Brasilia, Minas Geraës, Serra Ouro Preto, in sylvula, Febr. 1892: *E. Ule* 1486. Type not located.

Isopterygium pseudosubulatum (C. Müll.) Par., Ind. Bryol. Suppl. 220. 1900.

Taxicaulis pseudosubulatus C. Müll., Flora 83: 340. 1897. Type: Venezuela, coll. C. Goebel. Type not located.

Isopterygium pygmaeocarpum (C. Müll.) Broth., Nat. Pfl. 1(3): 1081. 1908.

Taxicaulis pygmaeocarpus C. Müll., Hedwigia 40: 66. 1901. Type: Brasilia, Sa. Catharina, Tubarào, ad truncos arborum sylvestrium, Julio 1890: E. Ule, 973. Type not located.

Isopterygium sapricola (C. Müll.) Broth., Nat. Pfl. 1(3): 1083. 1908.

Taxicaulis sapricola C. Müll., Hedwigia 40: 67. 1901. Type: Brasilia, Rio de Janeiro, Monte Corcovado "auf Laub" in declivibus, Aug. 1887: *E. Ule 165*. Type not located.

Taxicaulis sapricola var. *minor* C. Müll., Hedwigia 40: 68. 1901. Type: Brazil, Rio de Janeiro, Monte Corcovado, Nov. 1893, *E. Ule 1722*. Type not located.

Isopterygium subcurvicolle (C. Müll.) Par., Ind. Bryol. ed. 2.3: 125 1905. ("um")

Taxicaulis subcurvicollis C. Müll., Hedwigia 40: 65. 1901 Type: Brasilia, Sa Catharina, Blumenau, in cortice putrido sylvae rivuli Burgerbach, Aprili 1888, *E. Ule;* Tubarào, in truncis arborum putridis, Octobri 1889, *E. Ule, 640; 783;* Serra Geral, in araucarieto, Aprili 1891; *E. Ule 1202.* Type not located.

Isopterygium subsplendidulum (C. Müll.) Par., Ind. Bryol. Suppl. 221. 1900.

Taxicaulis subsplendidulus C. Müll., Bull. Herb. Boiss. 5: 210. 1897. Type: Guatemala, Mazatenango, *Bernoulli & Cario. 75, 84.* Type not located.

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Table 2. *Isopterygium* taxa of Latin America recognized by Index Muscorum Wijk *et al.* (1964, 1969) and Ireland (1984) and their proposed deposition. Type locality of taxa described from Latin America in parentheses.

I. adflatum (C. Müll.) Par. (Argentina) = *I. tenerum*
I. afflictum (C. Müll.) Bronth. (Brazil) = *I. tenerum*
I. affusum Mitt. (Brazil) Accepted species
I. albidens (C. Müll.) Broth. (Brazil) = *Plagiothecium lucidum* (Hook. F. & Wils.) Par.
I. alstonii Bartr. (Venezuela) = *Wijkia alstonii* (Bartr.) Irel.
I. ammophilum (C. Müll.) Broth. (Brazil) = *I. tenerum*
I. angustirete (Broth) Broth. (Brazil) = *I. tenerum*
I. aurantiacum (C. Müll.) Broth. (Brazil) = *I. tenerum*
I. bahiense (C. Müll.) Broth. (Brazil) = *I. tenerum*
I. brachyneuroides Broth. (Brazil) = *I. tenerum*
I. brachyneuron (C. Müll.) Mitt. (Brazil) = *I. tenerum*
I. brachystelium (Hampe) Kindb. (Brazil) = *I. tenerum*
I. brevisetum (Hornsch.) Broth. (Brazil) = *? Type not located*
I. bromeliophilum (C. Müll.) Broth. (Brazil) = *I. tenerum*

Continúa...

Continuación

I. byssobolax (C. Müll.) Par. (Argentina) Accepted species
I. cacti (C. Müll.) Kindb. (Argentina) = *I. tenerum*
I. callochlorum Broth. (Paraguay) = *I. tenerum*
I. chlorosum (Hampe) Par. (Brazil) = *I. tenerum*
I. chrismarii (C. Müll.) Mitt. (Mexico) = *? Type not located*
I. citrinum (Hampe) Kindb. (Brazil) = *I. tenerum*
I. clandestinum (Aongstr.) Broth. (Brazil) = *I. tenerum*
I. cordovense (C. Müll.) Jaeg & Sauerb. (Mexico) = *I. tenerum*
I. curvicolle (C. Müll.) Mitt. (Brazil) = *I. tenerum*
I. cylindraceum (C. Müll.) Par. (Bolivia) = *I. tenerum*
I. deplanatiforme (Kinbd) Broth. (Colombia) = *Mittenothamnium scalpellifolium* (C. Müll.) Crum
I. diminitivum Bartr. (Mexico) = *I. tenerum*
I. distichaceum (Mitt.) Jaeg. & Sauerb. Reported from Mexico (Ireland 1984) = *Pseudotaxiphyllum distichaceum* (Mitt.) Iwats.
I. divaricatulum (Hampe) Broth. (Brazil) = *I. tenerum*
I. elegans var. *nanum* (Jur.) Jaeg & Sauerb, Reported from Argentina (Matteri 1986) but specimen not located.
I. eutrypherum (C. Müll.) Par. (Venezuela) = *I. tenerum*
I. exiguum (Gen. & Hampe) Kindb. (Brazil) = ? Type not located
I. exile (C. Müll.) Par. (Paraguay) = ? Type not located
I. fabroniiforme (C. Müll.) Broth. (Brazil) = *I. tenerum*
I. fecundum Ren. & Card. (Costa Rica) = *I. tenerifolium*
I. fernandezianum Broth. *in* Skottsb. (Chile) = *I. tenerum*
I. fernandezianum var. *longisetum* Broth. *in* Skottsb. (Chile) = *I. tenerum*
I. flaviusculum (C. Müll.) Broth. (Brazil) = *I. tenerum*
I. fruticola (C. Müll.) Par. (Surinam) = ? Type not located
I. fuegianum Besch. (Chile) = *Isopterygiopsis pulchella* (Hedw.) Iwats.
I. gracillimum (Hornsch.) Broth. (Brazil) = ? Type not located
I. guarapense Besch. (Paraguay) = *I. tenerum*
I. homomallifolium Redf. Reported from Mexico (Ireland, 1984) = *Pseudotaxiphyllum homomallifolium* (Redf.) Irel.
I. hookeriophilum (C. Müll.) Broth. (Brazil) = ? Type not located
I. hospitans (Hampe) Jaeg & Sauerb. (Colombia) = *I. tenerum*
I. integrifolium Bartr. (Costa Rica) = *Plagiothecium drepanophyllum* Ren. & Card.
I. irelandii Robins. (Honduras) = *I. affusum*
I. lamprophyllum (Jaeg & Sauerb.) Broth. (Brazil) = *I. tenerum*
I. laxum (Jaeg & Sauerb.) Broth. (Brazil) = *I. tenerum*
I. leptomiton (C. Müll.) Jaeg. & Sauerb. (Guatemala) = *I. tenerum*
I. leptoplumosum (Dus.) Card. (Chile?) = *Isopterygiopsis pulchella* (Hedw.) Iwats.
I. leucophyllum (Hampe) Mitt. (Chile) = *I. tenerum*
I. lonchopelmatum (C. Müll.) Broth. (Brazil) = *I. tenerifolium*
I. longisetum Broth. (Brazil) = *I. tenerifolium*
I. machrisianum (Crum) Irel. (Brazil) = *Pseudotaxiphyllum machrisianum* (Crum) Irel.
I. manaosense Broth. (Brazil) = *I. tenerifolium*
I. meteoriaceum (C. Müll.) Par. (Brazil) = *I. tenerifolium*
I. micans (Sw.) Kindb. = *I. tenerum*
I. microplumosum (C. Müll.) Broth. (Brazil) = ? Type not located
I. miradoricum (C. Müll.) Jaeg. & Sauerb. (Mexico) Accepted species
I. muellerianum (Schimp.) Jaeg. & Sauerb. Reported from Mexico (Ireland, 1984) = *Isopterygiopsis muelleriana* (Schimp.) Iwats.
I. paludigenum (C. Müll.) Broth. (Brazil) = *I. tenerifolium*
I. perminutum Bartr. (Guatemala) = *Platydictya perminutum* (Bartr.) Allen According to B. Allen (in herb.)
I. peruvianum Broth. (Peru) = *I. tenerum*
I. poasense Ren. & Card. (Costa Rica) = *Pseudotaxiphyllum distichaceum* (Mitt.) Iwats.
I. pseudosubulatum (C. Müll.) Par. Venezuela) = ? Type not located.
I. psuedotenerum (Broth. & Kindb.) Broth. (Colombia) = *I. tenerum*
I. pusillum Ren. & Card. (Porto Rico) = *I. subbrevisetum*
I. pygmaeocarpum (C. Müll.) Broth. (Brazil) = ? Type not located
I. pyrrhopus (C. Müll.) Par. (Argentina) = *I. byssobolax*
I. radicisetum (C. Müll.) Broth. (Guyana) = *I. tenerum*
I. restingae (C. Müll.) Broth. (Brazil) = *I. tenerifolium*

Continúa...

Continuación

I. restitutum (Hampe) Kindb. (Brazil) = *I. tenerum*
I. richardsii Bartr. (Mexico) = *Psedotaxiphyllum richardsii* (Bartr.) Irel.
I. sapricola (C. Müll.) Broth. (Brazil) = ? Type not located
I. sapricola var. *minor* C. Müll. (Brazil) = ? Type not located
I. saprophilum (C. Müll.) Par. (Argentina) = *I. byssobolax*
I. semicostatum Ren. & Card. (Costa Rica) = *Lepyrodon tomentosus* (Hook.) Mitt.
I. splendidulum (Hornsch.) Broth. (Brazil) = *I. tenerum*
I. stigmocarpum (C. Müll.) Par. (Bolivia) = *I. tenerifolium*
I. subbrevisetum (Hampe) Broth. (Brazil) Accepted species
I. subcurvicolle (C. Müll.) Par. (Brazil) = ? Type not located
I. subglobosum Herz. (Bolivia) Accepted species
I. submersum (Broth.) Broth. (Brazil) = *I. affusum*
I. subsplendidulum (C. Müll.) Par. (Guatemala) = ? Type not located
I. subtenerrimum (C. Müll.) Par. (Jamaica) = *I. subbrevisetum*
I. subtenerum Besch. (Paraguay) = *I. tenerum*
I. subtrichopelma Ren. & Card. (Costa Rica) = *Mittenothamnium* sp. according to Z. Iwatsuki (in herb.)
I. tenerifolium Mitt. (Brazil) Accepted species
I. tenerum (Sw.) Mitt. (Jamaica) Acceted species
I. trichopelma (C. Müll.) Par. (Guatemala) = *I. tenerum*
I. vagans Herz. (Bolivia) = *I. tenerifolium*
I. weigeltii (C. Müll.) Bronth. (Surinam) = *I. tenerum*

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